

Please add the following new claims:

a2

44. A method of fabricating a semiconductor device, comprising the steps of:  
forming an amorphous silicon film on an insulating substrate;  
heat treating said amorphous silicon film by laser annealing, therein  
forming a polycrystalline silicon film;  
forming an impurity region in said polycrystalline silicon film; and  
rapidly heat treating said impurity region by rapid thermal annealing,  
therein activating said impurity region.

45. A method of fabricating a semiconductor device, comprising the steps of:  
forming an amorphous silicon film on an insulating substrate;  
heat treating said amorphous silicon film by laser annealing, therein  
forming a polycrystalline silicon film;  
forming an impurity region in said polycrystalline silicon film; and  
rapidly heat treating said impurity region by employing a lamp as a heat  
source, therein activating said impurity region.

46. The method of fabricating a semiconductor device in accordance with  
claim 44, further comprising a step of forming a gate electrode on said polycrystalline  
silicon film before the step of forming said impurity region in said polycrystalline silicon  
film.

✓ 47. The method of fabricating a semiconductor device in accordance with claim 46, wherein said gate electrode comprises an amorphous silicon film[, and the amorphous silicon film] which is crystallized by heat treatment for activation of said impurity region.

a2 48. The method of fabricating a semiconductor device in accordance with claim 46, wherein said gate electrode comprises a layered structure of a silicon film and one of a metal and metal silicide film and resistance of said gate electrode is reduced by said heat treatment for activation of said impurity region.

49. The method of fabricating a semiconductor device in accordance with claim 44, wherein said amorphous silicon film contains microcrystals.

50. The method of fabricating a semiconductor device in accordance with claim 46, wherein said gate electrode has a layered structure of a silicon film and one of a metal and metal silicide film, and reduction of resistance of said gate electrode and activation of said impurity region are simultaneously performed by one of rapid thermal annealing and laser annealing.

51. The method of fabricating a semiconductor device in accordance with claim 44, wherein light irradiation heat from a lamp is employed as a heat source for said rapid thermal annealing.

52. The method of fabricating a semiconductor device in accordance with claim 45, wherein a xenon arc lamp is employed as said lamp.

53. A method of fabricating a thin film transistor, comprising the steps of:  
forming an amorphous silicon film on an insulating substrate;  
heat treating said amorphous silicon film by laser annealing, therein forming a polycrystalline silicon film;  
forming an impurity region in said polycrystalline silicon film; and  
rapidly heat treating said impurity region by rapid thermal annealing, therein activating said impurity region.

54. A method of fabricating a thin film transistor comprising the steps of:  
forming an amorphous silicon film on an insulating substrate;  
heat treating said amorphous silicon film by laser annealing, therein forming a polycrystalline silicon film;  
forming an impurity region in said polycrystalline silicon film; and  
rapidly heat treating said impurity region by employing a lamp as a heat source, therein activating said impurity region.

55. The method of fabricating a thin film transistor in accordance with claim 44, wherein heating by said rapid thermal annealing is performed a plurality of times while the heating temperature is increased stepwise from an initial time to a final time.

A2

56. A method of fabricating a semiconductor device, comprising the steps of:  
forming a semiconductor film on a substrate;  
forming an impurity region in said semiconductor film; and  
activating said impurity region by a heat treatment through rapid thermal annealing;  
wherein heating by said rapid thermal annealing being performed a plurality of times, the heating temperature being increased stepwise from an initial time to a final time.

57. A method of fabricating a semiconductor device in accordance with claim 56, wherein a highest heating temperature in said stepwise increasing in temperature through rapid thermal annealing is a temperature not deforming said substrate.

58. A method of fabricating a semiconductor device, comprising the steps of:  
forming a semiconductor film on a substrate;  
forming a gate electrode [on] of said semiconductor device [through] on a gate insulating film;  
forming an impurity region in said semiconductor film; and  
activating said impurity region by a heat treatment through rapid thermal annealing,  
wherein heating by said rapid thermal annealing being performed a plurality of times, the heating temperature being increased stepwise from an initial time to a final time.